

APPENDIX A

1. A method of detecting transcription activity comprising detecting the presence or absence of a nick in a DNA molecule, wherein the presence of a nick in the DNA molecule indicates transcription activity.
2. The method of claim 1 wherein the presence or absence of a nick in a DNA molecule is measured by determining the change in electrophoretic mobility of nicked DNA on an electrophoretic gel.
3. The method of claim 1 wherein the presence or absence of a nick in a DNA molecule is determined by a SI nuclease assay.
4. The method of claim 1 wherein the presence or absence of a nick in a DNA molecule is determined by a primer extension reaction.
5. The method of claim 1 wherein the presence or absence of a nick in a DNA molecule is determined by a polymerase chain reaction amplification reaction.
6. The method of claim 1 wherein the presence or absence of a nick in a DNA molecule is determined by a DNA sequencing assay.
7. The method of claim 1 wherein the presence or absence of a nick in a DNA molecule is determined by a protein binding assay.
8. The method of claim 1 wherein the DNA is affixed to a matrix.
9. The method of claim 8 wherein the matrix is a biological chip.
10. A method of detecting transcription activity comprising the steps of :

- a) providing a DNA template comprising at least one binding region for a transcription factor;
- b) contacting the DNA template with at least one transcription factor; and
- c) detecting the presence or absence of a nick in the DNA template, wherein the presence of a nick in the DNA template indicates transcription activity.

11. The method of claim 10, wherein the transcription factor is in a nuclear cell extract.

12. The method of claim 10, wherein the DNA template is inserted into a viral or plasmid vector and introduced into a cell.

13. The method of claim 10, wherein the DNA template is fixed to a matrix.

14. The method of claim 13, wherein the matrix is a biological chip.